

REMARKS

I. Status of Claims

Claims 1 and 4-12 are pending in the application, with claims 1 and 9 being the independent claims. Claims 11-12 have been withdrawn from consideration following an election. Without waiving any argument, and to facilitate prosecution, claims 2-3 are canceled and claims 1, 4, 6 and 9 are amended. In particular, subject matters previously presented in claims 2-3 and 6 are incorporated into claims 1 and 9. No new matter is introduced.

Claims 1 and 4-10 stand rejected under 35 USC 103(a) as allegedly being unpatentable over DE 19837373 in view of Cikanek (US 5,450,324) (“Cikanek”).

The Applicant respectfully requests reconsideration of these rejections in view of the foregoing amendments and the following remarks.

II. Applicant's Statement of Substance of Examiner Interview

In compliance with M.P.E.P. 713.04, the Applicant provides this Statement of Substance of Interview concerning the interview conducted on February 03, 2010 with Examiner Bradley KING, and the Applicant's representative, Xiaomin Huang.

- (A) Exhibits. N/A.
- (B) Claim(s). 1, 2, 6 and 9.
- (C) References Discussed. DE '373 and Cikanek.
- (D) Amendments. Proposed amendment to claims 3 and 7.
- (E) Principal arguments of Applicant. The Applicant's representative argued that the cited references did not teach or suggest a vehicle having *a slip-down detection module* and applying a mechanical braking force to the vehicle *in response to detection of a slip-down of said vehicle by said slip-down detection module*” as recited in the claims 1 and 9.
- (F) Other matters. None.
- (G) Results. The Examiner found the amendments/remarks presented in the interview unpersuasive.

III. Pending Claims

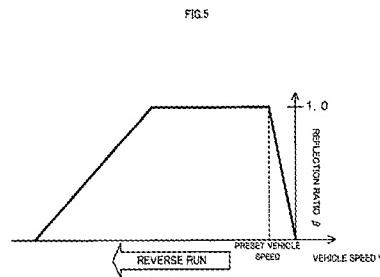
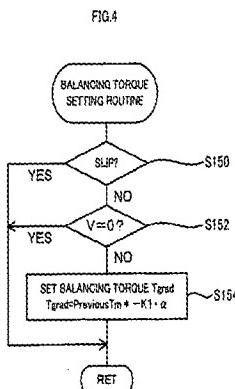
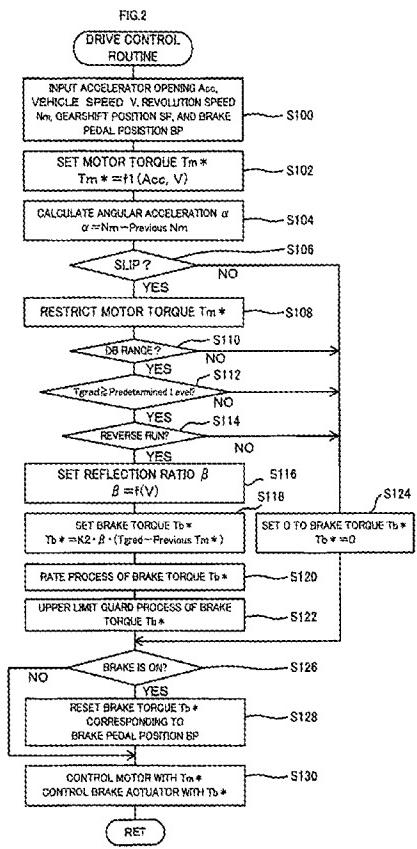
Independent claims 1 and 9 stand rejected under 35 USC 103(a) as allegedly being unpatentable over DE 19837373 in view of Cikanek.

The Applicant respectfully submits that claim 1 is patentable over the cited references at least because it recites, *inter alia*, “**a balancing force setting module that sets a balancing force**, which balances with a force acting in a direction of the slip-down of the vehicle, **based on a relation between an acceleration of said vehicle and the driving force output to the drive shaft**; and a controller ... actuating and controlling said mechanical braking device to **apply a mechanical braking force determined based on the set balancing force and the detected vehicle speed in the reverse direction** to said vehicle in response to detection of a slip-down of said vehicle by said slip-down detection module under restricting the driving force output to the drive shaft.” (emphasis added)

The Applicant respectfully submits that claim 9 is patentable over the cited references at least because it recites, *inter alia*, “(d) **setting a balancing force** that balances with a force acting in a direction of the slip-down of the vehicle, **based on a relation between an acceleration of the vehicle and the driving force output to the drive shaft**; and (e) actuating and controlling said mechanical braking device to **apply a mechanical braking force** to said vehicle, in response to detection of a slip-down of said vehicle in said step (c) under restricting the driving force output to the drive shaft in said step (b), wherein the braking force is **determined based on the set balancing force and the detected vehicle speed in the reverse direction.**” (emphasis added)

Certain embodiments of the present invention provide a control for a slip-down vehicle. In at least one embodiment, as shown in FIG. 2 of the Application reproduced below, a drive control routine for a vehicle determines whether the vehicle is slipping (e.g., step S106) and if the vehicle is slipping (e.g., “YES”) the motor torque is restricted (e.g., step S108). Thereafter, a balancing torque T_{grad} is compared with a predetermined level to see if it is not less than the predetermined level. Subsequently, the drive control route determines whether the vehicle is in a slip-down (e.g., step S114 “REVERSE RUN”), and if the vehicle is in a slip-down, set a brake torque to apply a mechanical braking force. As shown in step S154 of the reproduced FIG. 4 below, the balancing torque T_{grad} is based on the torque output to the drive shaft and an acceleration α . And as shown in step S118 of the reproduced FIG. 2 below, the braking force T_b^* is based on the balancing force and a reflection ratio β according to the vehicle speed in the reverse direction. Thus, an embodiment according to claim 1 requires “**a balancing force setting module that sets a balancing force, ..., based on a relation between an acceleration of said**

vehicle and the driving force output to the drive shaft, and a controller ... actuating and controlling said mechanical braking device to apply a mechanical braking force determined based on the set balancing force and the detected vehicle speed in the reverse direction.” And an embodiment according to claim 9 requires “(d) setting a balancing force ... based on a relation between an acceleration of the vehicle and the driving force output to the drive shaft; and (e) ... apply a mechanical braking force ... determined based on the set balancing force and the detected vehicle speed in the reverse direction.”



DE 19837373 relates to a method for locking protection and/or roll back control. DE 19837373 is published in German and a copy of English translation by machine is provided by Examiner King during the interview of Feb. 03, 2010. However, DE 19837373 merely mentions build-up pressure in the brake of the revving up wheel after detection of rolling back when a roller rolls into opposite direction to the revving up propelled wheels. Nowhere does DE 19837373 mention “*a balancing force... based on a relation between an acceleration of said vehicle and the driving force output to the drive shaft*” or “*apply a mechanical braking force ... determined based on the set balancing force and the detected vehicle speed in the reverse direction*” as required in claims 1 and 9.

The Cikanek reference does not cure the critical deficiencies of DE 19837373. Cikanek is directed to an antiskid braking and traction control system. In the cited portion, Cikanek only mentions reducing motor torque to decelerate driven wheels to allow for traction between the tires and road surface. However, nowhere does Cikanek disclose or teach “*a balancing force ... based on a relation between an acceleration of said vehicle and the driving force output to the drive shaft*” or “*apply a mechanical braking force ... determined based on the set balancing force and the detected vehicle speed in the reverse direction.*” Therefore, even DE 19837373 and Cikanek in combination do not teach each and every feature as required by both claims 1 and 9.

Further, the Office Action rejects dependent claim 5 based on Official Notice and ignores claim 6. In particular, the Examiner “takes official notice that it is well known in the art to consider road gradient in roll back control.” The Applicant respectfully *traverses* the Official Notice taken and requests evidence to substantiate the alleged motivations to modify DE 19837373 and/or Cikanek. Specifically, the Applicant requests evidence to substantiate the theory that it would have been obvious to *set a balancing force based on a relation between an acceleration of said vehicle and the driving force output to the drive shaft* or *apply a mechanical braking force ... determined based on the set balancing force and the detected vehicle speed in the reverse direction* as recited in the inventions of claims 1 and 9. This support is required under MPEP 2144.02 and 2144.03 and unsupported allegations cannot be used to reject the claims.

Moreover, as is also stated in MPEP § 2144, if the Applicant has demonstrated the criticality of a specific limitation (*e.g.*, setting a balancing force and applying a brake force based the set balancing force), it would not be appropriate to rely solely on case law, as the rationale to support an obviousness rejection. Accordingly, it is respectfully submitted that the proposed modification is improper.

In addition, as discussed in MPEP 2143.01, obviousness can *only* be established by combining or modifying the *teachings of the prior art* to produce the claimed invention where there is some *teaching, suggestion, or motivation* to do so. *In re Kahn*, 441 F.3d 977, 986, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006) (discussing rationale underlying the motivation-suggestion-teaching *>test< as a guard against using hindsight in an obviousness analysis).

Also, as discussed in *KSR Int'l Co. v. Teleflex, et al.*, No. 04-1350, (U.S. Apr. 30, 2007), it is necessary to identify the reason why a person of ordinary skill in the art would have been

prompted to modify DE 19837373 or Cikanek in the manner as recited in the inventions of claims 1 and 9. Obviousness cannot be sustained by mere conclusory statements.

Thus, it is respectfully submitted that claims 1 and 9, as well as their dependent claims, are patentable over the cited references.

IV. Conclusion

In view of the foregoing discussion, the Applicant respectfully submits that the present application is in all aspects in allowable condition. Favorable reconsideration and early issuance of a Notice of Allowance are therefore respectfully requested.

The Examiner is invited to contact the undersigned at (202) 220-4420 to discuss any matter concerning this application. The Office is authorized to charge any fees related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

Date: March 11, 2010

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